

**Designer Note-** Utilize this specification for grooving preformed thermoplastic for special markings.

**Pavement Marking Grooved Preformed Thermoplastic Railroad Crossings, Item SPV. 0060.01; Arrows Type 1, Item SPV.0060.02; Arrows Type 2, Item SPV.0060.03; Arrows Type 2R, Item SPV.0060.04; Arrows Type 3, Item SPV.0060.05; Arrows Type 3R, Item SPV.0060.06; Arrows Type 4, Item SPV.0060.07; Arrows Type 5, Item SPV.0060.08; Arrows Type 6, Item SPV.0060.09; Arrows Type 6R, Item SPV.0060.10; Arrows Type 7, Item SPV.0060.11; Arrows Type 7R, Item SPV.0060.12; Arrows Bike Lane, Item SPV.0060.13; Symbols, Item SPV.0060.14; Symbols Bike Lane, Item SPV.0060.15; Words, Item SPV.0060.16; Words Bike Lane, Item SPV.0060.17; Yield Line 18-Inch, Item SPV.0060.18; Yield Line 36-Inch, Item SPV.0060.19; Stop Line 12-Inch, Item SPV.0090.01; Stop Line 18-Inch, Item SPV.0090.02; Stop Line 24-Inch, Item SPV.0090.03; Diagonal 6-Inch, Item SPV.0090.04; Diagonal 8-Inch, Item SPV.0090.05; Diagonal 12-Inch, Item SPV.0090.06; Diagonal 18-Inch, Item SPV.0090.07; Diagonal 24-Inch, Item SPV.0090.08; Crosswalk 6-Inch, Item SPV.0090.09; Crosswalk 12-Inch, Item SPV.0090.10; Crosswalk 18-Inch, Item SPV.0090.11; Crosswalk 24-Inch, Item SPV.0090.12; Aerial Enforcement Bars 24-Inch, Item SPV.0090.13; 18-Inch, Item SPV.0090.14;**

#### **A Description**

This special provision describes grooving the pavement surface, and furnishing and installing preformed thermoplastic pavement marking as shown on the plans, in accordance with section 647 of the standards specifications, and as hereinafter provided.

#### **B Materials**

Furnish 125 mils preformed thermoplastic pavement marking from the department's approved products list. If required, furnish sealant material recommended by the manufacturer.

#### **C Construction**

##### **C.1 General**

For quality assurance, provide the project engineer and the region's Marking Section evidence of manufacturer training in the proper placement and installation of preformed thermoplastic pavement marking.

Plane the grooved lines in accordance with the plan details. Use grooving equipment with a free-floating, independent cutting or grinding head. Plane a minimum number of passes to create a smooth groove.

### **C.2 Groove Depth**

Cut the groove to a depth of 120 mils  $\pm$ 10 mils deep from the pavement surface or, if tined, from the high point of the tined surface. Measure depth using a straightedge placed perpendicular to the groove. The department may periodically check groove depths.

### **C.3 Groove Width – Linear Markings**

Cut the groove 1-inch wider than the width of the thermoplastic.

### **C.4 Groove Position**

Position the groove edge in accordance with the plan details.

#### **C.4.1 Linear Marking**

Groove at a minimum of 4-inches, but not greater than, 12-inches from both ends of the line segment. Achieve straight alignment with the grooving equipment.

#### **C.4.2 Special Marking**

Groove at a minimum of 4-inches from the perimeter of the special marking. Groove separate areas for Word Items.

### **C.5 Groove Cleaning**

#### **C.5.1 Concrete**

Cooling the cutting head with water may be necessary for some applications and equipment. If cooling water is necessary, flush the groove immediately with water after cutting to remove any build-up of cement dust and water slurry. If this is not done, the slurry may harden in the groove.

If water is used in the grooving process, allow the groove to dry a minimum of 24 hours after groove cleaning, after removal of excess water, and prior to pavement marking application. Clean and dry the groove for proper application of the sealant, and placement of the pavement marking. Use a high-pressure air blower with at least 185 ft<sup>3</sup>/min air flow and 90 psi air pressure to clean the groove; use of the air blower does not decrease the amount of time required for the groove to dry.

#### **C.5.2 Asphalt**

Use a high-pressure air blower with at least 185 ft<sup>3</sup>/min air flow and 90 psi air pressure to clean the groove.

Check for structural integrity in supporting grooving operations. If the structural integrity of the asphalt pavement is inadequate to support grooving operations, immediately notify the engineer.

### **C.6 Preformed Thermoplastic Application**

Preheat the surface if necessary based on manufacturer's recommendation.

Apply preformed thermoplastic in the groove as per manufacturer's recommendations. If manufacturer's recommendations require a sealant, apply a sealant lower than 91g/l VOC during the following period of time due to Volatile Organic Compound Limitations:

May 1 to September 30, both dates inclusive – the Southeast Region and the ozone non-attainment Northeast Region counties of Sheboygan, Manitowoc, and Kewaunee.

Use any sealant in the remainder counties and for the remainder of the year. The sealant must be wet.

### **D Measurement**

The department will measure Pavement Marking Grooved Preformed Thermoplastic by the unit, acceptably placed, or in length by the linear foot of tape placed in accordance with the contract and accepted.

### **E Payment**

The department will pay for measured quantities at the contract unit price under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
	Pavement Marking Grooved Preformed Thermoplastic	
SPV.0060.01	Railroad Crossings	Each
	Pavement Marking Grooved Preformed Thermoplastic	Each
SPV.0060.02	Arrows Type 1	
	Pavement Marking Grooved Preformed Thermoplastic	Each
SPV.0060.03	Arrows Type 2	
	Pavement Marking Grooved Preformed Thermoplastic	Each
SPV.0060.04	Arrows Type 2R	
	Pavement Marking Grooved Preformed Thermoplastic	Each
SPV.0060.05	Arrows Type 3	
	Pavement Marking Grooved Preformed Thermoplastic	Each
SPV.0060.06	Arrows Type 3R	
	Pavement Marking Grooved Preformed Thermoplastic	Each
SPV.0060.07	Arrows Type 4	
	Pavement Marking Grooved Preformed Thermoplastic	Each
SPV.0060.08	Arrows Type 5	

SPV.0060.09	Pavement Marking Grooved Preformed Thermoplastic Arrows Type 6	Each
SPV.0060.10	Pavement Marking Grooved Preformed Thermoplastic Arrows Type 6R	Each
SPV.0060.11	Pavement Marking Grooved Preformed Thermoplastic Arrows Type 7	Each
SPV.0060.12	Pavement Marking Grooved Preformed Thermoplastic Arrows Type 7R	Each
SPV.0060.13	Pavement Marking Grooved Preformed Thermoplastic Arrows Bike Lane	Each
SPV.0060.14	Pavement Marking Grooved Preformed Thermoplastic Symbols	Each
SPV.0060.15	Pavement Marking Grooved Preformed Thermoplastic Symbols Bike Lane	Each
SPV.0060.16	Pavement Marking Grooved Preformed Thermoplastic Words	Each
SPV.0060.17	Pavement Marking Grooved Preformed Thermoplastic Words Bike Lane	Each
SPV.0060.18	Pavement Marking Grooved Preformed Thermoplastic Yield Line 18-Inch	Each
SPV.0060.19	Pavement Marking Grooved Preformed Thermoplastic Yield Line 36-Inch	Each
SPV.0090.01	Pavement Marking Grooved Preformed Thermoplastic Stop Line 12-Inch	LF
SPV.0090.02	Pavement Marking Grooved Preformed Thermoplastic Stop Line 18-Inch	LF
SPV.0090.03	Pavement Marking Grooved Preformed Thermoplastic Stop Line 24-Inch	LF
SPV.0090.04	Pavement Marking Grooved Preformed Thermoplastic Diagonal 6-Inch	LF
SPV.0090.05	Pavement Marking Grooved Preformed Thermoplastic Diagonal 8-Inch	LF
SPV.0090.06	Pavement Marking Grooved Preformed Thermoplastic Diagonal 12-Inch	LF
SPV.0090.07	Pavement Marking Grooved Preformed Thermoplastic Diagonal 18-Inch	LF
SPV.0090.08	Pavement Marking Grooved Preformed Thermoplastic Diagonal 24-Inch	LF
SPV.0090.09	Pavement Marking Grooved Preformed Thermoplastic Crosswalk 6-Inch	LF
SPV.0090.10	Pavement Marking Grooved Preformed Thermoplastic Crosswalk 12-Inch	LF
SPV.0090.11	Pavement Marking Grooved Preformed Thermoplastic Crosswalk 18-Inch	LF
SPV.0090.12	Pavement Marking Grooved Preformed Thermoplastic Crosswalk 24-Inch	LF

SPV.0090.13	Pavement Marking Grooved Preformed Thermoplastic Aerial Enforcement Bars 24-Inch	LF
SPV.0090.14	Pavement Marking Grooved Preformed Thermoplastic 18-Inch	LF

Payment is full compensation for cleaning and preparing the pavement surface, furnishing and installing the material; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the contract work.

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